

What is claimed is:

1. An electric motor comprising:
  - a fixed shaft;
  - a first conical bearing integral with a first end of the shaft;
  - a second conical bearing fixed to a second end of the shaft; and
  - asymmetric grooves on the bearings pumping toward the outer ends of the shaft.
2. The electric motor according to claim 1, further comprising:
  - a vented plenum separating the first and second conical bearings;
  - a rotatable sleeve disposed around the shaft and the first and second conical bearings; and
  - a fluid between the first and second conical bearings and the sleeve.
3. The electric motor according to claim 2, wherein each of said first and second conical bearings is sealed by a capillary seal at a wider end of the bearing.
4. The electric motor according to claim 3, wherein the capillary seal defines a fluid reservoir.
5. The electric motor according to claim 4, wherein the capillary seal is a centrifugal capillary seal.
6. The electric motor according to claim 5, wherein at least one conical bearing is formed integral with the shaft and includes an opening therein extending to an end of the shaft.

7. The electric motor according to claim 5, wherein the grooves comprise fluid dynamic grooves circumscribing the surface of the bearing.
8. The electric motor according to claim 7, wherein the fluid dynamic grooves comprise an asymmetric V-shaped pattern.
9. The electric motor according to claim 8, wherein the vented plenum extends from the shaft through the sleeve to an outer surface of the sleeve.
10. The electric motor according to claim 8, wherein the vented plenum extends thru the shaft side wall through the shaft to the exterior of the motor.
11. The electric motor according to claim 9, wherein said first and second conical bearings further comprise pumping grooves that pump fluid toward the reservoirs defined by the capillary seals.
12. The electric motor according to claim 11, wherein the pumping grooves are asymmetric extensions of the fluid dynamic grooves.
13. A disk drive motor comprising:
  - means for rotatably supporting at least one disk;
  - a stationary shaft disposed through the supporting means in a spaced apart relation;
  - a first conical bearing integral with the shaft, and a second conical bearing supported on the shaft;
  - an asymmetric groove pattern on the conical bearings pumping toward opposite ends of the shaft and vent means separating the first and second conical bearings.

14. The disk drive motor according to claim 13, wherein the means for rotatably supporting the at least one disk further comprises:
- a hub;
  - a magnet assembly mounted to the hub; and
  - a stator disposed proximate the magnet assembly to induce rotation of the hub relative to the stationary shaft.
15. The disk drive motor according to claim 14, further comprising a fluid between the stationary shaft and the means for supporting the at least one disk.
16. The disc drive motor according to claim 15 wherein the vent means comprise a vented plenum extending through the sleeve.
17. The electric motor according to claim 15 wherein the vented plenum extends thru the shaft side wall and through the shaft to the exterior of the motor.
18. The electric motor according to claim 15, wherein each of said first and second conical bearings is sealed by a capillary seal at a wider end of the bearing.
19. The electric motor according to claim 18, wherein the capillary seal is a centrifugal capillary seal.
20. The electric motor according to claim 15, wherein the grooves comprise fluid dynamic grooves circumscribing the surface of the bearing.

20. The electric motor according to claim 15, wherein the vented plenum extends from the shaft through the sleeve to an outer surface of the sleeve.
21. The electric motor according to claim 15, wherein the vented plenum extends thru the shaft side wall through the shaft to the exterior of the motor.
22. The electric motor according to claim 15, wherein said first and second conical bearings further comprise pumping grooves that pump fluid toward the reservoirs defined by the capillary seals.